

AMENDMENT

Claims 1-28 (Withdrawn)

29. (Amended) A chemically modified biopolymer comprising the following formula:



Wherein G-C(O)- is a biopolymer comprising the reaction product of a biopolymer, an activating agent, and an organic disulfide compound, said biopolymer containing at least one carbonylxylic acid group, -C(O)-, on the biopolymer backbone which reacts with bound to R,

R is an amino or hydroxyl group or an oxygen atom,

L is a lower alkyl spacer,

S is a sulfur atom, and

M is an organic moiety on the terminal portion of the organic disulfide compound; or any pharmaceutically acceptable salt thereof.

30. (Amended) The chemically modified biopolymer of claim 29, wherein the biopolymer is selected from the group consisting of hyaluronic acid, carboxymethyl cellulose, carboxymethyl amylose, carboxymethyl chitosan, chondroitin-6-sulfate, dermatan sulfate, polycarbophil, heparin, and heparin sulfate.

31. (Original) The chemically modified biopolymer of claim 30, wherein the biopolymer is hyaluronic acid.

32. (Original) The chemically modified biopolymer of claim 29, wherein the biopolymer is selected from the group consisting of polyacrylic acid, poly- α -glutamic acid, poly- γ glutamic acid, and alginate.

33. (Amended) The chemically modified biopolymer of claim 29, wherein the organic compound moiety is selected from the group consisting of 2-(3-nitro-pyridine)s, thio-pyridines, substituted S-phenyl disulfides, S-sulfonate derivatives, 9-anthrylmethyl thioesters, S-carboxymethyl derivatives and nitro-thiobenzoic acid derivatives.

34. (Amended) The chemically modified biopolymer of claim 33, wherein the organic compound modified biopolymer is a hyaluronic acid modified by the 2-(3-nitro-2-pyridinesulfonyl)-ethylamine.

35. (Amended) The chemically modified biopolymer of claim 29 or 33 wherein the terminal group R is an amino group.

36. (Amended) The chemically modified biopolymer of claim 29 or 33 wherein the disulfide L is linked to the terminal group with a lower normal or iso-substituted alkyl spacer.

37. (Amended) A chemically modified biopolymer comprising the following formula:



Wherein G-C- is a biopolymer having a methylene group, C, bound to R,

R is an imino or amino-group.

L is a lower alkyl spacer,

S is a sulfur atom, and

M is an organic moiety; or any pharmaceutically acceptable salt thereof comprising the reaction product of a biopolymer, a reducing agent, and an organic disulfide compound, said biopolymer containing a carbonyl group on the terminal portion of the biopolymer which reacts with an amino or hydroxyl group on the terminal portion of the organic disulfide compound.

38. (Amended) The chemically modified biopolymer of claim 37, wherein the biopolymer is selected from the group consisting of hyaluronic acid, carboxymethyl cellulose, carboxymethyl amylose, carboxymethyl chitosan, chondroitin-6-sulfate, dermatan sulfate, polycarbophil, heparin, and heparin sulfate.

39. (Original) The chemically modified biopolymer of claim 38, wherein the biopolymer is hyaluronic acid.

40. (Original) The chemically modified biopolymer of claim 37, wherein the biopolymer is selected from the group consisting of polyacrylic acid, poly- α -glutamic acid, poly- γ -glutamic acid, and alginate.

37
41. (Amended) The chemically modified biopolymer of claim 32, wherein the organic compound moiety is selected from the group consisting of 2-(3-nitro-pyridine)s, thio-pyridines, substituted S-phenyl disulfides, S-sulfonate derivatives, 9-anthrylmethyl thioesters, S-carboxymethyl derivatives and nitro-thiobenzoic acid derivatives.

42. (Amended) The chemically modified biopolymer of claim 41, wherein the organic compound modified biopolymer is hyaluronic acid modified by a thio 2-(3-nitro-2-pyridinesulfonyl) ethylamine.

43. (Amended) The chemically modified biopolymer of claims 37 or 41 wherein R the terminal group is an amino group.

44. (Amended) The chemically modified biopolymer of claims 37 or 41 wherein L is the disulfide is linked to the terminal group with a lower normal or iso-substituted alkyl spacer.

Claims 45-54 (Withdrawn)

55. (New) The chemically modified biopolymer of claim 34 wherein the modified biopolymer has a degree of modification in a range of about 1-2%, 15-20%, or 40 to 50%.

56. (New) The chemically modified biopolymer of claim 42 wherein the modified biopolymer has a degree of modification of about 35% or 50%.